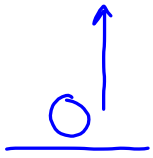
1) An 0.65 kg ball is lifted to 2 m. What is the gravitational potential energy of the ball?

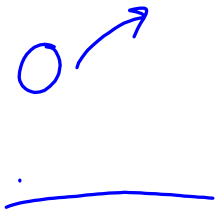


$GPE = mgh$

$= (0.65\,kg)(9.8\,m/s^2)(2\,m)$

$= 12.74\,J$

2) A 5.75 kg stone is launched with a velocity of 21 m/s. What is the kinetic energy of the stone?



$KE = \frac{1}{2}mv^2$

$= \frac{1}{2}(5.75\,kg)(21\,m/s)^2$

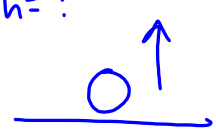
$= 1267\,J$

3) An 0.65 kg ball is given a GPE of 100 J. How high is the ball lifted?

$m = 0.65\,kg$

$GPE = 100\,J$

$h = ?$



$GPE = mgh$

$\frac{GPE}{mg} = \frac{mgh}{mg}$

$h = \frac{GPE}{mg}$

$= \frac{100\,J}{(0.65\,kg)(9.8\,m/s^2)} = 15.7\,m$

4) A box is pushed with a force of 50 N and 225 J of work on done on the box. How far was the box pushed?

$W = 225\,J$

$F = 50\,N$

$d = ?$

$W = Fd$

$\frac{W}{F} = \frac{Fd}{F}$

$d = \frac{W}{F}$

$= \frac{225\,J}{50\,N}$

$= 4.5\,m$

Variable	units
mass (m)	kg
work (W)	J [Joules]
Force (F)	N [Newtons]
displacement (d)	m [meters]
gravitational potential energy (GPE)	J
acceleration due to gravity (a_g)	m/s^2
height (h)	m
kinetic energy (KE)	J
velocity (v)	m/s